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committees. For instance, a special committee was appointed to consider the form of the next catalogue of earthquakes; another to consider the question of seismological bibliography; a third will collect information regarding mistpoeffers, and a fourth will study microseismic movements; the latter are continued movements of periods usually between four and eight seconds, which sometimes last for hours and even days. They have been observed throughout the world and have been supposed to be due to variations of the barometer, to winds, to the beating of the waves upon the shore, etc.

There were a number of scientific papers presented. Professor Wiechert gave his conclusions regarding the interior of the earth as the result of seismological observations. He finds that the velocity of the first preliminary tremors of an earthquake is about 7.2 kilometers per second at the surface of the earth and increases gradually to a depth of 1,500 kilometers; there it suddenly increases to 12.8 kilometers per second. Below that depth the variations are slow for some distance but finally approach the velocity of 10 kilometers near the center. Professor Wiechert considers that this confirms his earlier idea of a central core of iron or steel surrounded by a stony layer, and that it fixes the radius of the core at 4,500 kilometers, and the thickness of the stony layer at 1,500 kilometers. The existence of long vibrations of periods of 18 seconds or more reveals, he thinks, the existence of a layer of liquid or plastic material at a depth of about 30 kilometers from the surface.

Prince Galitzin advocated the use of strong electro-magnetic damping and electro-magnetic recording for seismographs. He showed a small horizontal pendulum provided with coils of wires in a strong magnetic field. One set of coils served to damp the instrument and the second set was connected with a dead beat galvanometer whose deflections are recorded photographically. The velocity and not the displacement of the pendulum is recorded. Although requiring considerable skill for its installation, this instrument promises to be very valuable.

Professor Rosenthal gave the results of his studies of seismograms. He thinks that the periods of vibrations, during the principal part of the movement, increase progressively and therefore concludes that the seismogram is drawn out for somewhat the same reason that the spectrum is. It is to be noted, however, that other observers have failed to detect the progressive change of period.

Harry Fielding Reid

Scientific Notes and News

A "Life of Lord Kelvin" is in course of preparation by Professor Sylvanus P. Thompson. It will be published by The Macmillan Company.

At the Chicago meeting of the American Society of Naturalists, Professor D. P. Penhallow, of McGill University, was elected president, and Professor H. E. McKnower, of the Johns Hopkins University, secretary.

The president of the American Chemical Society, Professor Marston T. Bogert, of Columbia University, has been reelected for the ensuing year.

Professor George E. Stratton, of the Johns Hopkins University, has been elected president, and Professor A. H. Pierce, of Smith College, has been elected secretary, of the American Psychological Association.

Professor Hugo Münsterberg, of Harvard University, has been elected president, and Professor W. P. Montague, of Columbia University, vice-president, of the American Philosophical Association.

The Chicago Section of the American Mathematical Society, meeting in affiliation with the American Association, elected Professor G. A. Miller chairman, and reelected Professor H. E. Slaught secretary, for the ensuing year.

Dr. Walter M. Mitchell has been appointed director of the Haverford College Observatory.

Dr. Theobald Smith, professor of comparative pathology at Harvard University, has received the degree of doctor of laws from the University of Chicago.

DR. NICHOLAS SENN, whose lamented death occurred while the American Association for the Advancement of Science was meeting in Chicago, had just received the Order of Merit of the Japanese Society of the Red Cross by the sanction of the Emperor of Japan. Dr. Senn had likewise been elected an honorary member of the Royal Medical Society of Budapest.

PRESIDENT ARTHUR T. HADLEY, of Yale University, will complete his course of lectures in the Roosevelt professorship, established by Columbia University at the University of Berlin, in about five weeks and, with his family, will sail for this country, arriving in New Haven about March 1.

SIR THOMAS CLIFFORD ALLBUTT, M.D., regius professor of physic, at Cambridge, was entertained on December 16 at a complimentary dinner by the Master of Downing and the medical men of Cambridge, in the hall of Downing College, upon the occasion of his being created a Knight Commander of the Bath.

COUNT MAURICE DE PÉRIGNY gave a lecture before the Geographical Society of Pennsylvania on January 8, entitled "Some Unknown Ruins in Yukatan."

THE Society of Biblical Literature and Exegesis at a meeting held at the University of Pennsylvania on December 31, passed the following resolution:

WHEREAS, Charges reflecting on American Oriental scholarship have been publicly made against Professor H. V. Hilprecht.

Resolved, That this society shares in the desire already expressed by a number of American Oriental scholars that a complete reply to these charges be made in the journal of the society or elsewhere.

A MEMORIAL to Herman Brehmer, the inaugurator of sanatorium treatment of tuberculosis, is to be unveiled at Breslau, at the time of the twenty-ninth Balneological Congress, which convenes on March 5.

ACCORDING to foreign journals, the Russian Physico-chemical Society has arranged to hold a conference of general and applied chemistry in honor of Mendeléeff in the course of the present month at the University of St. Petersburg. Several discourses will be delivered on the great chemist's life and works. A subscription has been started for the purchase of a Mendeléeff House, which, like the Hofmann House in Berlin, would be used for the meetings of learned societies.

DR. CHARLES AUGUSTUS YOUNG, the eminent astronomer, died at Hanover, N. H., on January 4.

DR. NICHOLAS SENN, the distinguished surgeon of Chicago, professor in the Rush Medical College, died on January 2, at the age of 63 years.

PETER TOWNSEND AUSTIN, Ph.B. (Columbia '72), Ph.D. (Zurich '76), at one time professor in Rutgers College and the Brooklyn Polytechnic Institute, and since 1896 practising as a chemical expert, died on December 30, aged fifty-five years.

PIERRE CHARLES CESAR JANSSEN, director of the Meudon Astrophysical Observatory, died on December 23, at the age of eighty-three years.

THE Association of American Universities has been meeting at the University of Michigan, Ann Arbor, this week.

THE American Breeders' Association will hold its fourth annual meeting at Washington, D. C., January 28–30, 1908, in the National Rifles Armory and Carroll Hall. The program includes reports on scientific investigations in heredity and also addresses and discussions by practical men on the improvement of animals and plants. The scientific, economic and human aspects of heredity will also be substantially presented in the reports of over forty permanent committees of the association.

THE Oklahoma University Science Club was organized in October last, to meet twice a month. Membership is limited to regular faculty instructors in the various science departments and includes at present seventeen individuals. The officers are: *President,* Edwin DeBarr, professor of chemistry; *Vice-president,* Cyril M. Jansky, professor of physics; *Secretary-treasurer,* Henry H. Lane, professor of zoology and embryology; *Chairman*

of the Executive Committee, Albert H. Van Vleet, professor of botany. The object of the club is "to promote original research" among its members. The following papers have already been read:

"The Snakes of Oklahoma," by Professor Van Vleet.

"Modern Methods in the Extraction of Ores," by Professor De Barr.

"Recent Advances in Serum-therapy," by Professor Williams.

"Some Observations n the Cuban Cave Fishes," Professor Lane.

THE department of anthropology of the University of California has come into possession of the linguistic and ethnological manuscripts of the late P. S. Sparkman, of Valley Center, California, comprising the results of his many years' studies of the Luiseño Indians.

A RESTORATION of the skull of a great horned dinosaur has just been installed for exhibition in Peabody Museum, Yale University. It is nearly nine feet long, and about six feet broad, and is said to be the largest skull of any prehistoric land animal.

AUSTRIAN papers announce the formation, by the joint action of the Academies of Sciences in Vienna, Prague and Krakow, of an Austrian Egyptological institute at Cairo. The yearly expenses are estimated at 30,000 to 40,000 crowns. The first excavations are to be made at Fayûm.

IN order to observe the eclipse of the sun on January 3, which appeared as a total eclipse in the tropical Pacific Ocean, Mr. C. G. Abbot, director of the Astrophysical Observatory of the Smithsonian Institution, has been sent to Flint Island, 400 miles northwest of Tahiti. The eclipse was total between eleven and twelve o'clock in that longitude, which corresponds to between four and five o'clock Washington time. Mr. Abbot, with an assistant, joined a party headed by Professor W. W. Campbell, of Lick Observatory, California, sailing on the steamship *Mariposa* from San Francisco to Papeete, Tahiti, on November 22. The gunboat *Annapolis* furnished transportation between Tahiti and Flint Island. Mr. Abbot's observations comprise an examination with the Langley bolometer of the sun's corona, especially toward its inner part, to help decide what is the most probable cause of its luminosity. For this coronal light three sources have been suggested: (1) the reflection of ordinary sunlight, (2) the emission of light owing to the high temperature of small particles near the sun, and (3) the emission of light by luminescence like that of the aurora borealis. It was proposed also to observe with instruments the peculiarities of sky light before the day of the eclipse so that even if clouds should obscure the eclipse, there would still be something of value brought back from the trip.

ACCORDING to the London *Times* Dr. Sven Hedin, writing from Gargunsa, under date of November 8, states that he has been down to Nepal from Tradum, crossing the Pass of Kore-la. The explorer afterwards crossed for the fifth time the mountain range, about 2,000 miles long, from the Salwin to the Panj, collecting valuable details. Dr. Sven Hedin has discovered the true source of the Brahmaputra River—namely, the Kubitsampo, which rises from a glacier on the northern side of the northernmost parallel range of the Himalayas. The Marium-chu, which has hitherto been regarded as the source, is merely a small tributary flowing in from the west. After a careful study of the hydrographic problems regarding the Manasarowar and the Sutlej, Dr. Sven Hedin proceeded round the Troly Kailas, discovered the true source of the Indus, and traveled northeast to the thirty-second degree of latitude north. He is now proceeding to Ladakh and Khotan *via* the road running east of the Karakoram Pass. In the spring he will travel either to Peking or India.

THERE was a meeting at the Carnegie Institute, Pittsburg, on January 2, of those interested in medical education, at which the following questions were discussed:

First—Realizing that four years in college and four years in a medical school are too much of a man's life to ask in preparation for his profession, the Academy of Medicine proposes to so arrange the college courses and the medical courses that six years only will be required.

Second—"State medical examination laws."

Each state requires a state medical examination before a doctor can practise within its borders. The academy proposes that a uniform examination be held in every state and that a doctor who has passed this examination in one state may be admitted to practise in any other state without again taking an examination.

DAMAGES to the amount of $456,746.23 were awarded the New Liverpool Salt Company on December 31, by Judge Olin Wellborn, in the United States District Court, against the California Development Company on account of the destruction of its property in the Salton Sea caused by the overflow of the Colorado River. The overflow resulted, it was alleged, from the construction of canal intakes by the development company.

IN the material received from the Belgian government for the Congo exhibition, at the American Museum of Natural History, are extensive assortments of native mats, baskets, iron implements and musical instruments. Among the musical instruments are an unusually long ivory trumpet and a drum five feet in length. Other articles of interest are those which constitute a Congo sorcerer's outfit, consisting of a face mask, a dog-tooth necklace and several fetishes in the form of human figurines rudely carved in wood. The museum has secured from Professor Eugene Schroeder a collection of ethnological material from the Bismarck Archipelago in the South Pacific Ocean. Among the objects in the collection are several Malagans, or idols, from a Tabu, or Ghost house; an example of the ancient Death Drum, which was sounded only on the demise of a chief, and several masks which were used by the men in the Init dance. The remainder of the collection consists of implements of war and the chase, musical instruments, personal ornaments, clothing and household utensils.

THE *Nation,* which now has a department devoted to science, says: "Professor Charles Moureu of the École Supérieure de Pharmacie has studied various springs at the spot where the water gushes from the ground. He finds that they give out continuous emanations of radium and comparatively large quantities of such rare gases as argon, neon and helium. The single spring of the Lymbe at Bourbon-Lancy yields annually more than 10,000 litres of helium. The Académie de Médecine commissioned three young physicians, having proper scientific attainments, to study certain well-known springs. M. Ameuilles found Plombières and Bad Gastein in Austria the most active, with an emanation which has all the properties of radium emanation. The sediment is also radio-active, and the surrounding atmosphere lightly so. An observation, which explains why it is not the same thing to use bottled waters and 'take the waters' at the springs, shows that this radio-activity disappears in a short time; within four days half of it was lost in water taken away from the spring. It is even probable that all spring water, taken at its source, is slightly radio-active."

THE London *Times* states that the Indian Humanitarian Committee recently called the attention of Mr. Morley to the strong feeling which exists among Indian people against the multiplication of Pasteur institutes and the spread of "preventive inoculation" under the patronage of the government of India, and expressed the hope that steps would be taken to lessen the large sum of animal suffering which is inflicted in physiological laboratories. The secretary has received the following reply from Mr. Morley's private secretary, saying that the secretary of state has "recently been in communication with the government of India regarding the restrictions enforced in that country on experiments on living animals, and that the principles of the English act (which have been generally observed in practise), will be formally applied to all laboratories and institutes. When the Royal Commission has reported, the subject will be further considered in the light of its recommendations."

THE coal fields of thirteen states and territories were examined by geologists of the United States Geological Survey in 1906, and the results of this work have been published by the survey as Bulletin No. 316. The importance of the coal industry at the present time is well illustrated by a comparison of the

values of the leading mineral products of the United States for the year 1906:

Coal	$513,079,809
Iron	505,700,000
Copper	177,595,888
Clay products	161,032,722
Oil and gas	137,318,667
Gold and silver	132,630,200

So far as fuels are concerned the work of the Geological Survey is divided into three classes, geologic, technologic and statistical, the last of which is in charge of the Division of Mineral Resources, whose work for 1906 yielded the figures given above. All the geologic work on mineral fuels of the United States is under the general supervision of Mr. M. R. Campbell. The work is of various grades and degrees of precision, depending on the needs of the public and the conditions under which the surveys are carried on. In the region west of the one hundredth meridian the coal fields are comparatively unknown and the work of the survey is largely exploratory. Rapid reconnaissance surveys are made over large areas to determine the limits of the field and to obtain such information regarding the number and character of the coal beds and their attitude as may be possible in the present undeveloped condition of the field and with the hasty method of examination. In the eastern fields information is needed almost as badly as in the west, but the work is of a much more detailed character and involves not only a thorough study of the geologic conditions under which the coal occurs, but also a study of the quality of the coal and its adaptability to various commercial uses.

Messrs. Sotheby, Wilkinson and Hodge have, as we learn from the London *Times*, concluded a two-days' sale of books and manuscripts, chiefly scientific, and including the technical library of the late Dr. M. T. Masters, F.R.S., for over forty years editor of the *Gardener's Chronicle*, and other properties. A total of £1,677 7s. was realized. The sale included: L. and H. G. Reichenbach, "Icones Floræ Germanicæ et Helveticæ," 1834–60, Vols. 1 to 19, with fine colored plates—£54 10s. (Wheldon); T. C. Jerdon, "The Birds of India," 1862, the author's own copy prepared for a new edition, with the collection of drawings made by the author to illustrate his book and also the original MS.—£250 (Grote); an extensive collection of about 1,000 English and foreign pamphlets, chiefly botanical, formed by Dr. Masters and bound in 131 volumes—£38 (Wheldon); C. Loddiges, *The Botanical Cabinet*, 1818–33, 20 volumes, with 2,000 colored plates—£27 10s. (Quaritch); and two works by J. Gould, "Monograph of the Trochilidæ, or Family of Humming Birds," with the supplement, 1861–87—£35 10s. (Quaritch); and "The Birds of New Guinea," 1875–88—£39 (Parsons).

UNIVERSITY AND EDUCATIONAL NEWS

Mr. John D. Rockefeller has added $2,191,000 to his previous gifts to the University of Chicago, making the total amount of these nearly $24,000,000. Of Mr. Rockefeller's recent gift, the sum of two million dollars is for permanent endowment; the sum of $155,000 is to meet the deficit for 1907, and the sum of $36,000 is for miscellaneous purposes.

Colorado College has completed an addition of $500,000 to its productive funds, towards which the General Education Board and Mr. Andrew Carnegie each contributed $50,000. The town of Colorado Springs raised $50,000 toward the fund in two weeks.

Miss Katherine Greenhill has bequeathed to Trinity College, Oxford, about $3,000 to found an exhibition for a medical student in memory of her father, the late William Alexander Greenhill, M.D., of Oxford.

The French government will build a college for women at St. Germain-en-Laye.

Miss Laura D. Gill has resigned the deanship of Barnard College, Columbia University. Dr. William T. Brewster, professor of English, is acting dean.

Dr. Edwin G. Conklin, since 1896 professor of zoology in the University of Pennsylvania, has accepted the chair of biology in Princeton University. It is understood that Princeton University has offered Professor Conklin unusual facilities for his research work as well as a larger salary than is received by any professor at the University of Pennsylvania.